

Alternatives 3 and 4  
Option A

Bunker Hill  
Acid Mine Drainage  
Disposal of Raw Sludge in CIA Disposal Beds  
Order of Magnitude Cost Opinion (Quantity reduced by 10%)

DATE: 11/22/2000  
PROJECT NO.: 152215.FS.02  
ESTIMATE BY: D. Bunte  
N. Gulensoy

DESCRIPTION	QTY	QTY Reduced by 10%	UNIT	TOTAL UNIT COST	TOTAL COST
Subgrade Stabilization	10,500	9,450	C. Y.	4.00	\$37,800
Liner Protection Sand	8250	7,425	C. Y.	10.00	\$74,250
Drain Rock	1,950	1,755	C. Y.	18.00	\$31,590
Ditch Lining Geotextile	21,200	19,080	S. Y.	1.65	\$31,482
G C L	18,100	16,290	S. Y.	4.05	\$65,975
H D P E Geomembrane	18,100	16,290	S. Y.	5.40	\$87,966
H D P E Pipe, 10"	550	495	L. F.	23.00	\$11,385
Erosion Control Matting	11800	10,620	S.Y.	1.50	\$15,930
Perf Pipe, 4"	2000	1,800	L. F.	2.00	\$3,600
Perf Pipe, 6"	580	522	L. F.	3.00	\$1,566
HDPE Pipe, 6"	130	117	L. F.	2.50	\$293
Strip Drains	700	630	L. F.	1.75	\$1,103
Valves, 6" Knife Gate	2		Each	700.00	\$1,400
Valves, 10" Knife Gate	6		Each	1,000.00	\$6,000
Air/Vacuum Release Valve	1		Each	2,000.00	\$2,000
Valve Vault	6		Each	1,950.00	\$11,700
Water Tight Manhole	1		Each	3,500.00	\$3,500
Vertical Filtrate Drains	6		Each	4,000.00	\$24,000
Cleanouts	2		Each	750.00	\$1,500
Perimeter Road Embankment (not reduced)	28275	28,275	C. Y.	10	\$282,750
Chain Link Fence and Gates (not reduced)	1000	1,000	L.F.	12	\$12,000
Crushed Rock Surfacing (not reduced)	1500	1,500	C. Y.	15	\$22,500
SUBTOTAL					\$975,539
MISC ALLOWANCE	10%				\$97,554
SUBTOTAL					\$1,073,092
CONTINGENCY	30%				\$321,928
SUBTOTAL					\$1,395,020
MOBILIZATION	15%				\$209,253
CONSTRUCTION TOTAL					\$1,604,273
SALES TAX ON MATERIALS	5.0%				\$25,622
ENGINEERING AND SUPPORT	20%				\$320,855
CONSTRUCTION MANAGEMENT	8%				\$128,342

CAPITAL COST SUBSEQUENT BEDS TOTAL (ROUNDED)	\$2,080,000
ANNUAL O&M COST FOR OPERATING BED	\$42,000
NPV OF ANNUAL O&M COSTS (30 YEARS @ 7% INTEREST)	\$518,000
NPV OF INITIAL AND SUBSEQUENT BEDS & CLOSURES CAPITAL COSTS @ 7% INTEREST	\$6,590,000
TOTAL 30-YEAR PRESENT WORTH COST @ 7% INTEREST	\$7,108,000

NOTES:  
Misc Allowance markup is to include items known to exist but cannot be quantified at this time.  
Contingency is for scope changes that are presently unforeseen.  
Mobilization includes bonds, insurance, temporary facilities, health & safety, demobilization, etc.

NOTE: The above cost opinion is in November 2000 dollars and does not include escalation.  
The order of magnitude cost opinion shown has been prepared for guidance in project evaluation at the time of preparation. The final costs of the project will depend on actual labor and material costs, actual site conditions, productivity, competitive market conditions, final project scope, final schedule and other variable factors. As a result, the final project costs will vary from those presented above. Because of these factors, funding needs must be carefully reviewed prior to making specific financial decisions or establishing final budgets.

Alternative 3 and 4  
Option C

Bunker Hill  
Acid Mine Drainage  
Disposal of Raw Sludge in Smelter Closure Area Disposal Beds  
Order of Magnitude Cost Opinion (Quantity reduced by 10%)

DATE: 11/29/2000  
PROJECT NO.: 152215.FS.02  
ESTIMATE BY: D. Bunte  
N. Gulensoy

DESCRIPTION	QTY	QTY Reduced by 10%	UNIT	TOTAL UNIT COST	TOTAL COST
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CAPITAL COST FOR NEW CELLS IN FUTURE YEARS  
(DOES NOT INCLUDE PUMPING AND PIPING COST)

Sludge Disposal Bed (per each)					
Excavation	25,000	22,500	C. Y.	3.30	\$74,250
Subgrade Preparation	5	5	Acres	3,300.00	\$14,850
Subgrade Stabilization	10,500	9,450	C. Y.	4.40	\$41,580
Liner Protection Sand	8250	7,425	C. Y.	19.80	\$147,015
Drain Rock	1,950	1,755	C. Y.	19.80	\$34,749
Ditch Lining Geotextile	21,200	19,080	S. Y.	1.82	\$34,630
G C L	18,100	16,290	S. Y.	4.46	\$72,572
H D P E Geomembrane	18,100	16,290	S. Y.	5.94	\$96,763
H D P E Pipe, 10"	550	495	L. F.	25.30	\$12,524
Erosion Control Matting	11800	10,620	S.Y.	1.65	\$17,523
Perf Pipe, 4"	2000	1,800	L. F.	2.20	\$3,960
Perf Pipe, 6"	580	522	L. F.	3.30	\$1,723
HDPE Pipe, 6"	130	117	L. F.	2.75	\$322
Strip Drains	700	630	L. F.	1.93	\$1,213
Valves, 6" Knife Gate	2		Each	770.00	\$0
Valves, 10" Knife Gate	6		Each	1,100.00	\$0
Air/Vacuum Release Valve	1		Each	2,200.00	\$0
Valve Vault	6		Each	2,145.00	\$0
Water Tight Manhole	1		Each	3,850.00	\$0
Vertical Filtrate Drains	6		Each	4,400.00	\$0
Cleanouts	2		Each	825.00	\$0
Perimeter Road Embankment (not reduced)	28275	28,275	C. Y.	11.00	\$311,025
Chain Link Fence and Gates (not reduced)	1000	1,000	L.F.	13.20	\$13,200
Groundwater Monitoring Wells (not reduced)	2		Each	6,600.00	\$13,200
Crushed Rock Surfacing (not reduced)	1500	1,500	C. Y.	16.50	\$24,750

SUBTOTAL		\$1,151,632
MISC ALLOWANCE	10%	\$115,163
SUBTOTAL		\$1,266,796
CONTINGENCY	30%	\$380,039
SUBTOTAL		\$1,646,834
MOBILIZATION	15%	\$247,025
CONSTRUCTION TOTAL		\$1,893,859
SALES TAX ON MATERIALS	5.0%	\$27,572
ENGINEERING AND SUPPORT	20%	\$378,772
CONSTRUCTION MANAGEMENT	8%	\$151,509

CAPITAL COST SUBSEQUENT BEDS TOTAL (ROUNDED) \$2,450,000

ANNUAL O&M COST FOR OPERATING BED \$67,000

NPV OF ANNUAL O&M COSTS (30 YEARS @ 7% INTEREST) \$829,000

NPV OF INITIAL AND SUBSEQUENT BEDS & CLOSURES CAPITAL COSTS @ 7% INTEREST \$11,054,000

TOTAL 30-YEAR PRESENT WORTH COST @ 7% INTEREST \$11,883,000

NOTES:  
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